Five Years After To Err Is Human: What Have We Learned?

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JAMA. 2005;293:2384-2390

Five years ago, the Institute of Medicine (IOM) issued its landmark report on medical errors, *To Err Is Human: Building a Safer Health System.* The report's finding that as many as 98,000 people die each year due to medical errors ignited professional and public dialogue. Patient safety has since become a frequent topic for journalists, health care leaders, and consumers, but is health care any safer now? And if not, why not?

Two authors of the IOM report, Lucian Leape, M.D., of the Harvard School of Public Health, and Donald Berwick, M.D., of the Institute for Healthcare Improvement, endeavor to answer these questions in "Five Years After To Err Is Human: What Have We Learned?" (*Journal of the American Medical Association,* May 18, 2005). Despite finding small improvements at the margins—fewer patients dying from accidental injection of potassium chloride, reduced infections in hospitals due to tightened infection control procedures—it is harder to see the overall, national impact, Leape and Berwick say. "[T]he groundwork for improving safety has been laid in these past five years but progress is frustratingly slow," they write.

Accomplishments

While *To Err Is Human* has not yet succeeded in creating comprehensive, nationwide improvements, it has made a profound impact on attitudes and organizations. First, it has changed the way health care professionals think and talk about medical errors and injury, with few left doubting that preventable medical injuries are a serious problem. "It truly changed the conversation," say Leape and Berwick. A central concept of the report—that bad systems and not bad people lead to most errors—has since become a mantra in health care.

The second major effect of the report was that it helped recruit a broad array of stake-holders to advance the cause of patient safety. In 2001, Congress responded to the IOM recommendations by allocating $50 million annually for patient safety research to the Agency for Healthcare Research and Quality (AHRQ), the lead federal agency for health care safety. Other important players that have emerged include the Veteran's Health Administration, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and the Centers for Medicare and Medicaid Services (CMS), as well as purchasers and payers. However, the most important stake-holders, say the authors, are the physicians, nurses, therapists, and pharmacists who have become much more alert to safety hazards and who are committed to making improvements on the front lines.

Clearly, the report has also produced real changes in the practice of health care. In 2003, JCAHO began requiring hospitals to implement 11 safety practices, including improving patient identification, communication, and "surgical site verification" (marking a body part to ensure surgery is performed on the correct part). More safe practices will

be added in 2005. In addition, teaching hospitals initiated new residency training hour limitations in 2003, aimed at reducing errors due to fatigue.

Challenges
With all this growing awareness and activity, why is health care not measurably safer? The answers, the authors say, lie in the very culture of medicine. Creating a culture of safety requires changes that physicians may perceive as threats to their autonomy and authority. Fear of malpractice liability, moreover, may create an unwillingness to discuss or even admit to errors. Other issues include the complexity of the health care industry, with its vast array of specialties, subspecialties, and allied health professionals; a lack of leadership at the hospital and health plan level; and a scarcity of measures with which to gauge progress.

The current reimbursement system can also work against safety improvement and, in some cases, may actually reward less-safe care, the authors say. For instance, some insurance companies will not pay for new practices to reduce errors, while physicians and hospitals can bill for additional services that are needed when patients are injured by mistakes.

Next Steps
Despite formidable barriers, the authors expect to see dramatic advances in the next five years in the following areas: implementation of electronic health records, wide diffusion of proven and safe practices, spread of training on teamwork and safety, and full disclosure to patients following injury. However, while these advances will have an impact on reducing errors, they represent only a small fraction of the work that needs to be done. To create comprehensive, nationwide change, pressure must be applied to the health care industry. Public outrage, reformed reimbursement policies, and regulation can create some of this needed pressure. In addition, the authors suggest payment incentives to accelerate widespread adoption. It may be equally important, they say, to create negative financial consequences for hospitals or organizations that continue to perform unsafe practices.

The single most important step, however, is to set and adhere to "strict, ambitious, quantitative, and well-tracked national goals," say Leape and Berwick. They urge AHRQ to bring together organizations, including JCAHO, CMS, and the American Medical Association, to agree to a set of patient safety goals to be reached by 2010. The most important lesson of the past five years, the authors argue, is that "we will not become safe until we choose to become safe."

Clinical Effectiveness of Safe Practices	
Intervention	
Results	
Physician computer order entry	81% reduction of medication errors[a,b]

Pharmacist rounding with team	66% reduction of preventable adverse drug events[c] 78% reduction of preventable adverse drug events[d]
Rapid response teams	Cardiac arrests decreased by 15%[e]
Team training in labor and delivery	50% reduction in adverse outcomes in preterm deliveries[f]
Reconciling medication practices upon hospital discharge	90% reduction in medication errors[g]
Ventilator bundle protocol	Ventilator-associated pneumonias decreased by 62%[h]

[a] D. W. Bates, J. M. Teich, J. Lee et al., "The Impact of Computerized Physician Order Entry on Medication Error Prevention," *Journal of the American Medical Informatics Association* 6 (July/August 1999): 13–21.
[b] D. W. Bates and A. A. Gawande, "Improving Safety with Information Technology," *New England Journal of Medicine* 348 (June 19, 2003): 2526–34.
[c] L. L. Leape, D. J. Cullen, M. D. Clapp et al, "Pharmacist Participation on Physician Rounds and Adverse Drug Events in the Intensive Care Unit," *Journal of the American Medical Association* 282 (July 21, 1999): 267–70.
[d] S. N. Kucukarslan, M. Peters, M. Mlynarek, D. A. Nafziger, "Pharmacists on Rounding Teams Reduce Preventable Adverse Drug Events in Hospital General Medicine Units," *Archives of Internal Medicine* 163 (September 22, 2003): 2014–18.
[e] L. Landro, "The Informed Patient: Hospitals Form 'SWAT' Teams to Avert Deaths," *Wall Street Journal,* December 1, 2004.
[f] B. Sachs, Beth Israel Deaconess Medical Center, written communication, October 2004.
[g] J. D. Rozich and R. K. Resar, "Medication Safety: One Organization's Approach to the Challenge," *Journal of Clinical Outcomes Management* 8 (October 2001): 27–34.
[h] J. Whittington, written communication, March 2005.

Source: L. L. Leape and D. M. Berwick, "Five Years After To Err Is Human: What Have We Learned?" *Journal of the American Medical Association* 293 (May 18, 2005): 2384–90.

Citation

Five Years After To Err Is Human: What Have We Learned? Lucian L. Leape, M.D., Donald M. Berwick, M.D., *Journal of the American Medical Association,* May 18, 2005, 293 (19): 2384–90